

application. In view of the foregoing amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

Applicants note with appreciation the acknowledgment of the claim for foreign priority and the indication that all of the certified copies of the priority documents have been received.

Applicants thank the Examiner for considering the previously filed Information Disclosure Statement, PTO-1449 paper and cited references.

## **II. Rejection of Claims 1 to 18 Under 35 U.S.C. § 112**

Claims 1 to 18 were rejected under 35 U.S.C. § 112 as indefinite for allegedly failing to particularly point out and distinctly claim the subject matter of the invention. The Office Action states that "[t]he independent claims note the invention in terms of function with no structure except an apparatus which performs the function" and that "it is very broad and nearly fails to provide enablement." Office Action at . 2. Applicants respectfully disagree. As an initial matter, Applicants note - without acquiescing to the Office Action's characterization of the present claims as "not[ing] the invention in terms of function with no structure except an apparatus which performs the function" -- that functional language does not, in and of itself, render a claim improper. In re Swinehart, 439 F.2d 210, 169 U.S.P.Q. 226 (C.C.P.A. 1971). Moreover, breadth of a claim is not to be equated with indefiniteness. In re Miller, 441 F.2d 689, 169 U.S.P.Q. 597 (C.C.P.A. 1971). It is therefore respectfully submitted that even if the apparatus claims use functional language -- which is not the case here -- and even if the claims are broad, neither provides a valid basis for rejecting the claims under 35 U.S.C. § 112.

Moreover, the Office Action contends that "while the event and time characteristics are alluded to on page 25, there is no proper antecedent basis for the terms themselves found in the disclosure." Office Action at p. 2. Applicants note however, that "[t]here is no requirement that the words in the claim must match those used in the specification disclosure" and that "Applicants are given a great deal of latitude in how they choose to define their invention so long as the terms and phrases used define the invention with a reasonable degree of clarity and precision." M.P.E.P. § 2173.05(f) (emphasis added).

The Office Action states that "[a]t least claim 4 notes the threshold and gap, which terms are not clearly understood in the context of the claims." Office Action at p. 2. However, the definiteness of claim language must be analyzed, not in a vacuum, but in light of the content of the particular application disclosure, the teachings of the prior art and the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made. M.P.E.P. § 2173.02. In this regard, the Examiner will note that the Specification states at page 25, lines 11 to 16:

In the present invention, instead of closing the charge switch 3 again after the current has fallen below the lower limit, and thus allowing the current to rise again, the activation system according to the present invention provided for generating, if necessary, a current that can exhibit gaps and thus results in a lower average current.

With regard to claim 18, the Examiner will note that claim 18 has been canceled herewith without prejudice. It is therefore respectfully submitted that the present rejection is moot with respect to claim 18.

In view of the foregoing, it is respectfully submitted that all of the pending claims fully comply with the requirements of 35 U.S.C. § 112, and withdrawal of this rejection is therefore respectfully requested.

### **III. Rejection of Claims 1 to 6 and 8 to 17 Under 35 U.S.C. § 102(b)**

Claims 1 to 6 and 8 to 17 were rejected under 35 U.S.C. § 102(b) as anticipated by European Published Patent Application No. 0 871 230 ("Reineke et al."). Applicants respectfully submit that Reineke et al. do not anticipate the present claims for the following reasons.

Claim 1 relates to an apparatus for charging or discharging a piezoelectric element. Claim 1 recites that "a current is regulated as a function of a time characteristic and an event characteristic to achieve an effective low average current."

Claim 2 relates to an apparatus for charging or discharging a piezoelectric element of a fuel injection system. Claim 2 recites that "a current of the fuel injection system is regulated as a function of a time characteristic and an event characteristic to achieve an effective low average current."

Claim 12 relates to a method for charging a piezoelectric element in a system. Claim 12 recites that "a current of the system is regulated as a function of a time characteristic and an event characteristic to achieve an effective low average current."

Claim 13 relates to a method for charging or discharging a piezoelectric element of a fuel injection system. Claim 13 recites that "a current of the fuel injection system is regulated as a function of a time characteristic and an event characteristic to achieve an effective low absolute average current."

Claim 17 relates to a method for charging or discharging a piezoelectric element of a fuel injection system. Claim 17 recites that "a definition is made . . . for an absolute value of the current for charging or discharging the piezoelectric element . . . as a function of a time characteristic of the fuel injection system."

The Office Action relies on the asserted similarity between certain Figures of the present and Figures 1 to 10 of Reineke et al. to support the contention that Reineke et al. anticipate the present claims. However, the Office Action merely contains conclusory statements that Reineke et al. describe the limitations of the claims. For example, the Office Action contends that "Reineke et al. show (fig. 1) an apparatus for charging or discharging a piezoelectric element (1), characterized in that a current is regulated as a function of a time characteristic (see fig. 6) and an event characteristic to achieve an effective low average current." Office Action at p. 3. However, it is respectfully submitted that Reineke et al. do not disclose, or even suggest, at least the "current . . . regulated as a function of a time characteristic and an event characteristic to achieve an effective low average current" as recited in claim 1, the "current of the fuel injection system . . . regulated as a function of a time characteristic and an event characteristic to achieve an effective low average current" as recited in claim 2, the "current of the system . . . regulated as a function of a time characteristic and an event characteristic to achieve an effective low average current" as recited in claim 12, the "current of the fuel injection system . . . regulated as a function of a time characteristic and an event characteristic to achieve an effective low absolute average current" as recited in claim 13 or the "definition . . . made . . . for an absolute value of the current for charging or discharging the piezoelectric element . . . as a function of a time characteristic of the fuel injection system" as recited in claim 17.

To anticipate a claim, each and every element as set forth in the claim must be found in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of Calif., 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the . . . claim." Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). That is, the prior art must describe the elements arranged as required by the claims. In re Bond, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). As more fully set forth above, it is respectfully submitted that Reineke et al. do not disclose, or even suggest, at least the foregoing limitations of claims 1, 2, 12, 13 and 17. Accordingly, it is respectfully submitted that Reineke et al. do not anticipate claims 1, 2, 12, 13 and 17.

Additionally, to reject a claim under 35 U.S.C. § 102, the Examiner must demonstrate that each and every claim limitation is contained in a single prior art reference. See, Scripps Clinic & Research Foundation v. Genentech, Inc., 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991). Still further, not only must each of the claim limitations be identically disclosed, an anticipatory reference must also enable a person having ordinary skill in the art to practice the claimed invention, namely the inventions of the rejected claims, as discussed above. See, Akzo, N.V. v. U.S.I.T.C., 1 U.S.P.Q.2d 1241, 1245 (Fed. Cir. 1986). In particular, it is respectfully submitted that, at least for the reasons discussed above, the reference relied upon would not enable a person having ordinary skill in the art to practice the inventions of the rejected claims, as discussed above. Also, to the extent that the Examiner is relying on the doctrine of inherency, the Examiner must provide a "basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flows from the teachings of the applied art." See M.P.E.P. § 2112; emphasis in original; and see, Ex parte Levy, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). Thus, the M.P.E.P. and the case law make clear that simply because a certain result or characteristic may occur in the prior art does not establish the inherency of that result or characteristic. Accordingly, the anticipation rejection as to the rejected claims must necessarily fail for the foregoing reasons.

In summary, it is respectfully submitted that Reineke et al. do not anticipate claims 1, 2, 12, 13 and 17.

As for claims 3 to 6 and 7 to 11, which depend from claim 1, and claims 14 to 16, which depend from claim 12, it is respectfully submitted that Reineke et al. do not anticipate these dependent claims for at least the same reasons given above in support of the patentability of claims 1 and 12.

**IV. Rejection of Claim 18 Under 35 U.S.C. § 102(b)**

Claim 18 was rejected under 35 U.S.C. § 102(b) as anticipated by German Published Patent Application No. 197 29 844 ("Heinz et al."). As indicated above, however, claim 18 has been canceled herein without prejudice. It is therefore respectfully submitted that this rejection is rendered moot, and withdrawal of this rejection is therefore respectfully requested.

**V. Rejection of Claim 7 Under 35 U.S.C. § 103(a)**

Claim 7 was rejected under 35 U.S.C. § 103(a) as unpatentable over Reineke et al. It is respectfully submitted that Reineke et al. do not render obvious claim 7 for the following reasons.

Claim 7 depends from claim 1 and therefore includes all of the limitations of claim 1. As more fully set forth above with respect to claim 1, it is respectfully submitted that Reineke et al. do not disclose, or even suggest, the "current . . . regulated as a function of a time characteristic and an event characteristic to achieve an effective low average current" as recited in claim 1.

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). As indicated above, Reineke et al. do not disclose, or even suggest, the "current . . . regulated as a function of a time

characteristic and an event characteristic to achieve an effective low average current" as recited in claim 1. It is therefore respectfully submitted that Reineke et al. do not render obvious claim 7, which depends from claim 1.

Moreover, it is respectfully submitted that the cases of In re Fine, supra, and In re Jones, 21 U.S.P.Q.2d 1941 (Fed. Cir. 1992), make plain that the Office Action's generalized assertions that it would have been obvious to modify or combine references do not properly support a § 103 rejection. It is respectfully submitted that those cases make plain that the Office Action reflects a subjective "obvious to try" standard, and therefore does not reflect the proper evidence to support an obviousness rejection based on the references relied upon. In particular, the Court in the case of In re Fine stated that:

The PTO has the burden under section 103 to establish a *prima facie* case of obviousness. It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. This it has not done. . . .

. . . .

**Instead, the Examiner relies on hindsight in reaching his obviousness determination. . . . One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.**

In re Fine, 5 U.S.P.Q.2d at 1598 to 1600 (citations omitted; italics in original; emphasis added). Likewise, the Court in the case of In re Jones stated that:

Before the PTO may combine the disclosures of two or more prior art references in order to establish *prima facie* obviousness, there must be some suggestion for doing so, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. . . .

**Conspicuously missing from this record is any evidence, other than the PTO's speculation (if it be called evidence) that one of ordinary skill . . . would have been motivated to make the modifications . . . necessary to arrive at the claimed [invention].**

In re Jones, 21 U.S.P.Q.2d at 1943, 1944 (citations omitted; italics in original).

That is exactly the case here since it is believed and respectfully submitted that the present Office Action offers no evidence whatsoever, but only conclusory hindsight, reconstruction and speculation, which these cases have indicated does not constitute evidence that will support a proper obviousness finding. Unsupported assertions are not evidence as to why a person having ordinary skill in the art would be motivated to modify or combine references to provide the claimed subject matter of the claims to address the problems met thereby. Accordingly, the Office must provide proper evidence of a motivation for modifying or combining the reference to provide the claimed subject matter.

More recently, the Federal Circuit in the case of In re Kotzab has made plain that even if a claim concerns a "technologically simple concept" -- which is not the case here -- there still must be some finding as to the "specific understanding or principle within the knowledge of a skilled artisan" that would motivate a person having no knowledge of the claimed subject matter to "make the combination in the manner claimed," stating that:

In this case, the Examiner and the Board fell into the hindsight trap. The idea of a single sensor controlling multiple valves, as opposed to multiple sensors controlling multiple valves, is a technologically simple concept. With this simple concept in mind, the Patent and Trademark Office found prior art statements that in the abstract appeared to suggest the claimed limitation. But, there was no finding as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge of Kotzab's invention to make the combination in the manner claimed. In light of our holding of the absence of a motivation to combine the teachings in Evans, we conclude that the Board did not make out a proper prima facie case of obviousness in rejecting [the] claims . . . under 35 U.S.C. Section 103(a) over Evans.

In re Kotzab, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000) (emphasis added). Again, it is believed that there have been no such findings.

The Office Action also contends that "[t]he shape of the signal is arbitrary however and is clearly equivalent to other types of signals that would perform the same function and which shape, is well within the skills of a routineer in the art to produce." Office Action at p. 5. Applicants respectfully disagree. The shape of the signal is not arbitrary as alleged by the Office Action. Moreover, the contention that the square-wave "is well within the skills of a routineer in the art to

produce" is plainly indicative that the present rejection is improperly based on an "obvious to try" standard and cannot support an obviousness determination. Ex parte Levengood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993) (a statement that modifications of the prior art to meet the claimed invention would have been well within the ordinary skill in the art at the time the claimed invention was made because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references).

Accordingly, there is no evidence that the reference relied upon, whether taken alone, combined or modified, would provide the features and benefits of claim 7, which ultimately depends from claim 1. It is therefore respectfully submitted that claim 7 is allowable for these reasons.

#### **VI. New Claims 19 to 38**

New claims 19 to 38 have been added herein. It is respectfully submitted that new claims 19 to 38 do not add any new matter and are fully supported by the present application, including the Specification. It is respectfully submitted that these claims are allowable.

#### **VII. Conclusion**

Attached hereto is a marked-up version of the changes made to the claims by the current Amendment. The attached page is captioned "**Version with Markings to Show Changes Made.**"



It is therefore respectfully submitted that all of the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

Claim 18 has been canceled herein without prejudice.

Claims 14 to 16 have been amended without prejudice as follows:

14. (Twice Amended) Method as according to claim [11] 12, characterized in that the charge or discharge switch (3, 5) of the system is switched from an OFF position to an ON position or from the ON position to an OFF position, respectively to allow or stop charging or discharging when an absolute value of the current is respectively equal to or greater than or less than the event characteristic which is a predefined limit threshold current.

15. (Twice Amended) Method as according to claim [11] 12, characterized in that a charge or discharge switch (3, 5) of the system is switched from the OFF position to the ON position to allow charging or discharging at a predefined time of the time characteristic after the absolute value of the current is equal to or less than the event characteristic which is a predefined lower limit threshold current.

16. (Twice Amended) Method as according to claim [11] 12, characterized in that a square-wave signal of a certain frequency is used to switch a charge or discharge switch (3, 5) from an OFF position to an ON position to allow charging or discharging and characterized in that the charge or discharge switch (3, 5) is switched from the ON position to the OFF position when the absolute value of the current is equal to or greater than the event characteristic which is a predefined upper limit threshold current.

Claims 19 to 38 have been added.

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